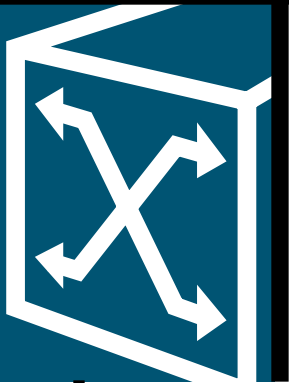CISCO SYSTEMS

Catalyst 3550-12T
Multilayer Gigabit Ethernet Switch

Overview

The Catalyst® 3550-12T 12-port, Multilayer Gigabit Ethernet switch allows network managers to increase control of their local-area networks (LANs) by combining the power of Cisco IOS® Intelligent Network Services with the simplicity of Web-based management. This 1000BaseT solution enables midmarket customers to significantly improve their network availability, scalability, and security by deploying Cisco IOS Intelligent Network Services in either the network backbone or top-of-the-stack wiring closet aggregation using Category 5 copper cabling. The Catalyst 3550-12T combines a robust feature set with the simplicity of traditional LAN switching, including multi-layer services like IP routing, advanced quality of service (QoS), IP security as well as the easy-to-use Web-based Cisco Cluster Management Suite.

The Catalyst 3550-12T Switch is 1.5 rack units (RU) and features ten 10/100/1000BaseT ports and two Gigabit Interface Converter (GBIC)-based 1000BaseX ports.

Figure 1   Catalyst 3550-12T Multi-layer Gigabit Ethernet switch.

High-Performance Routing in the Backbone or at the Top of the Stack

With a switching fabric of 24 Gbps, and a maximum forwarding rate of 12 Gbps, the Catalyst 3550-12T switch delivers dynamic IP routing at a 17 Mpps forwarding rate on all ports. The distributed Cisco Express Forwarding (CEF)-based routing architecture allows for increased scalability and performance. This architecture allows for very high-speed lookups while also ensuring the stability and scalability necessary to meet the needs of future requirements. In addition to a 17 Mpps forwarding rate, the Catalyst 3550-12T is perfectly equipped for networks requiring multicast support. Multicast routing protocols (PIM) and Internet Group Management Protocol (IGMP) snooping in hardware make the Catalyst 3550-12T an ideal switch in an intensive multicast environment.

The Catalyst 3550-12T offers several advantages to improve network performance when used as a top-of- the-stack wiring closet aggregator switch. Implementing routed uplinks from the top of the stack will improve network availability by enabling faster failover protection and simplifying the Spanning-Tree Protocol (STP) algorithm by terminating all STP instances at the aggregator switch. If one of the uplinks fail, quicker failover to the other uplink can be achieved via a scalable routing protocol such as Open Shortest Path First

(OSPF) or Enhanced Interior Gateway Routing Protocol (EIGRP) rather than relying on standard STP convergence. Redirection of a packet after a link failure via a routing protocol results in faster network convergence than a solution that uses Layer 2 Spanning Tree enhancements. Additionally, routed uplinks allow better bandwidth utilization by implementing equal cost routing (ECR) on the uplinks to perform load balancing. This results in dynamic load balancing in a part of the network that often acts as the bottleneck. And, routed uplinks optimize the utility of uplinks out of the wiring closet by eliminating unnecessary broadcast data flows into the network backbone. The Catalyst 3550-12T can also offer dramatic bandwidth savings as a top-of-the-stack wiring closet aggregator switch in a multicast environment. Using routed uplinks to the network core will eliminate the requirement to transmit multiple streams of the same multicast from the upstream content servers to the wiring closet aggregator switch. For example, if three users are assigned to three separate virtual LANs (VLANs) and they all want to view multicast ABC, then three streams of multicast ABC are required to be transmitted from the upstream router to the wiring closet aggregator switch—assuming the aggregator switch is not capable of routed uplinks. With the Catalyst 3550-12T, a scalable solution in a multicast-rich network becomes attainable.

Customers who have an existing copper wiring infrastructure in their buildings now have a truly compelling option to migrate to Gigabit speeds in their LANs. The Catalyst 3550-12T can be placed in the network backbone or used as a top-of-the-stack aggregator delivering up to 12 Gbps forwarding rate to a stack of single IP managed switches. In conjunction with the new Catalyst 2950T-24 and the 1000BaseT GBIC, the Catalyst 3550-12T provides an integrated Gigabit Ethernet over Copper solution for those midmarket customers who have outgrown their Fast Ethernet backbones.

Enhanced Quality of Service

The Catalyst 3550-12T offers superior Layer 3 granular quality of service (QoS) features to ensure that network traffic is classified, prioritized, and congestion is avoided in the best possible manner. The Catalyst 3550-12T can classify, reclassify, police, and mark the incoming packets before the packet is placed in the shared buffer. Packet classification allows the network elements to discriminate between various traffic flows and enforce policies based on Layer 2 and Layer 3 QoS fields. First, the Catalyst 3550-12T identifies "aggregates," or packet groups, and classifies or reclassifies these groups using the Differentiated Services Code Point field (DSCP) and/or the 802.1p Class of Service (CoS) field. Classification and reclassification can be based on criteria as specific as the source/destination IP address, source/destination Media Access Control (MAC) address or the Layer 4 TCP/UDP ports. At the ingress, the Catalyst 3550-12T will also perform policing and marking of the packet. Control plane and data plane Access Control Lists (ACLs) are supported on all ports to ensure proper policing and marking on a per packet basis.

After the packet goes through classification, policing, and marking, it is then assigned to the appropriate queue before exiting the switch. The Catalyst 3550-12T supports four egress queues per port, which allows the network administrator to be more discriminating and specific in assigning priorities for the various applications on the LAN. At egress, the switch performs scheduling and congestion control. Scheduling is an algorithm/process that determines the order in which the queues are processed. The Catalyst 3550-12T supports Weighted Round Robin (WRR) scheduling with future support for strict priority scheduling. Strict priority queuing ensures that the highest priority packets will always get serviced first, ahead of all other traffic. The WRR queuing algorithm ensures that the lower priority packets are not entirely starved for bandwidth and are serviced without compromising the priority settings administered by the network manager. In conjunction with scheduling, the Catalyst 3550-12T supports congestion control via Weighted Random Early Detection (WRED). WRED avoids congestion by setting thresholds at which packets are dropped before over-congestion occurs.

These features allow network administrators to prioritize mission-critical and/or bandwidth-intensive traffic, such as ERP (Oracle, SAP, etc.), voice (IP telephony traffic) and CAD/CAM over less time-sensitive applications such as FTP or email (SMTP). For example, it would be highly undesirable to have a large file download destined to one port on a wiring closet switch and have quality implications such as increased latency in voice traffic, destined to another port on this switch. This condition is avoided by ensuring that voice traffic is properly classified and prioritized throughout the network. Other applications, such as web-browsing, can be treated as low priority and handled on a best-efforts basis.

Sophisticated Traffic Management

The Catalyst 3550-12T is capable of performing rate limiting via its support of the Cisco Committed Access Rate (CAR) functionality. Through CAR, bandwidth can be guaranteed in increments as low as 8K. Bandwidth can be allocated based on several criteria including MAC source address, MAC destination address, IP source address, IP destination address, and TCP/UDP port numbers. Bandwidth allocation is essential in network environments requiring service-level agreements or when it is necessary for the network manager to control the bandwidth given to certain users. In addition to CAR functionality, the Catalyst 3550-12T supports 128 aggregate or individual policers. This gives the network administrator very granular control of the LAN's bandwidth.

Enhanced Security and Management Through Integrated IOS Features

The Catalyst 3550-12T can offer enhanced data security through the use of ACLs. By denying packets based on source and destination MAC addresses, IP addresses, or TCP/UDP ports, users can be restricted from sensitive portions of the network. Also, due to the fact that all ACL lookups are done in hardware, forwarding and routing performance is not compromised when implementing ACL-based security in the network.

Network managers can also implement higher levels of data security and boost LAN performance by deploying up to 1005 VLANs per switch. This ensures that data packets are forwarded only to stations within a specific VLAN, creating separate collision domains between groups of ports on the network and reducing broadcast transmission. VLAN trunks can be created from any port using the standards-based 802.1Q or Cisco ISL VLAN trunking architecture. In addition, Private VLAN Edge provides security and isolation between ports on a switch, ensuring that traffic travels directly from its entry point to the aggregation device through a virtual path and cannot be directed to a different port. Local Proxy ARP works in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth. For superior security management, the Catalyst 3550-12T supports standard and extended access control lists (ACLs) on VLAN ports as well as routed ports.

With the Catalyst 3550-12T Multilayer switch, network managers can implement high levels of console security. Multilevel access security on the switch console and the web-based management interface prevents unauthorized users from accessing or altering switch configuration. Terminal Access Controller Access Control System (TACACS+) authentication enables centralized access control of the switch and restricts unauthorized users from altering the configuration.

Cisco Cluster Management Suite (CMS)

The Cisco Cluster Management Suite (CMS) is Web-based software that is embedded in Catalyst 3550-12T, 2950, 3500 XL, 2900 XL, and 1900 switches. Through Cisco Switch Clustering technology, users access CMS with any standard Web browser to manage up to 16 interconnected Catalyst 3550-12T, 2950, 3500 XL, 2900 XL, and 1900 switches at once—regardless of their geographic proximity—using a single IP address. With the addition of the 3550-12T, CMS can now extend beyond routed boundaries for even more flexibility in managing a Cisco cluster.

CMS provides an integrated management interface for delivering Cisco IOS Intelligent Network Services, enabling users to manage their entire LAN with one robust tool. By bringing the simplicity of traditional LAN switching to Intelligent Network Services such as multilayer switching, QoS, multicast, and security ACLs, CMS allows administrators to take advantage of benefits formerly reserved for only the most complex networks.

CMS supports a broad range of standards-based connectivity options and configurations to deliver levels of performance that are scalable to meet customer requirements. Switch Cluster connectivity options for Catalyst 3550 switches include Ethernet, Fast Ethernet, Fast EtherChannel, Gigabit Ethernet (1000BaseT), and Gigabit EtherChannel connectivity.

Because Cisco Switch Clustering technology is not limited by proprietary stacking modules, stacking cables or interconnection media, CMS expands the traditional cluster domain beyond a single wiring closet and lets users mix and match interconnections to meet specific management, performance, and cost requirements.

Catalyst 3550 switches can be configured either as command or member switches in a Cisco switch cluster. The command switch serves as the single-IP address management point and disburses all management instructions dictated by the network administrator to the other interconnected member switches. CMS also allows the network administrator to designate a standby or redundant command switch, which takes the commander duties should the primary command switch fail.

Key Features and Benefits

Enhanced Quality of Service

- Support for 802.1p CoS classification and reclassification on a per packet basis
- Support for RFC 2475 DiffServ Code Point classification and reclassification on a per packet basis
- Support for Cisco control/data plane ACLs on all ports to ensure proper policing and marking on a per packet basis
- Support for control/data plane IP Standard and Extended ACLs on all ports
- Ability to classify and reclassify packets based on Layer 4 TCP/UDP information
- No performance penalty for granular Quality of Service functionality
- 4 egress queues per port supported in hardware
- WRR queuing algorithm to ensure differential prioritization of packet flows
- WRED algorithm to avoid congestion at egress queues

Sophisticated Traffic Management

- Support for Cisco CAR functionality
- Extremely granular Rate Limiting supported in 8K increments
- Ability to limit data flows based on MAC SA/DA, IP SA/DA, TCP/UDP port numbers or any combination of these fields
- Ability to manage data flows asynchronously upstream and downstream from the end station or on the uplink
- Support for 128 aggregate or individual policers

High-Performance IP Routing

- Distributed CEF based routing architecture performed in hardware to deliver extremely high performance IP routing

- Support for all commonly deployed and industry standard IP routing protocols including RIPv1, RIPv2, OSPF, IGRP, EIGRP

- Fallback bridging support for non routable and non IP protocols

- Multicast Routing Protocols supported is Protocol Independent Multicast (PIM) (Sparse, Dense, and Sparse-Dense modes)

- Support for Distance Vector Multicast Routing Protocol (DVMRP) tunneling

- Support for Cisco Hot Standby Router Protocol (HSRP) to create redundant failsafe routing topologies

Ease-of-Use and Ease-of-Deployment

- Cisco CMS allows the network administrator to manage up to 16 inter-connected Catalyst 3550-12T, Catalyst 2950, Catalyst 3500 XL, Catalyst 2900 XL, and Catalyst 1900 switches through a single IP address without the limitation of being physically located in the same wiring closet

- Full backward compatibility ensures that any Catalyst 2950, Catalyst 3500 XL, Catalyst 2900 XL, or Catalyst 1900 switch can be managed with a Catalyst 3550-12T using the Cisco Cluster Management Suite

- Cisco Cluster Management Suite has been extended to include multilayer feature configurations such as Routing Protocol Configuration, ACLs, and Quality of Service parameters

- New Configuration Template/Wizard to aid in switch configuration of a network that streams video

- New Guide Mode in the CMS assists users in configuration of high end features

- Enhanced online help in CMS for context-sensitive assistance

- Autoconfiguration eases deployment of switches in the network by automatically configuring multiple switches across a network via a boot server

- Cluster software upgrade feature allows the user to automatically upgrade the system software on a group of Catalyst 3550-12T, Catalyst 2950, Catalyst 3500 XL and Catalyst 2900 XL switches

- IEEE 802.3z compliant 1000BaseSX, 1000BaseLX/LH, 1000BaseZX, and 1000BaseT physical interface support through a field replaceable GBIC module which provides customers unprecedented flexibility in switch deployment

- Auto-sensing on each port detects the speed of the attached device and automatically configures the port for 10, 100, or 1000 Mbps operation, easing the deployment of the switch in mixed 10, 100, and 1000BaseT environments

- Auto-negotiating on all ports automatically selects half- or full-duplex transmission mode to optimize bandwidth

- Default configuration stored in Flash ensures that the switch can be quickly connected to the network and can pass traffic with minimal user intervention

Exceptional Performance

- 24 Gbps switching fabric and 12 Gbps forwarding rate ensures maximum throughput even for the most performance sensitive applications

- 10 10BaseT/100BaseTX/1000BaseT auto-sensing ports and 2 GBIC-based Gigabit Ethernet ports delivers up to 12 Gbps aggregated forwarding bandwidth to small server farms or high performance end stations

- 2 MB shared memory architecture ensures the highest possible throughput with a design that eliminates head-of-line blocking, minimizes packet loss, and delivers better overall performance in environments with extensive multicast and broadcast traffic

- 32 MB DRAM and 8 MB Flash on-board enable the addition of future feature upgrades, maximizing customer investments

- Bandwidth aggregation up to 16 Gbps through Gigabit EtherChannel enhances fault tolerance and offers higher-speed aggregated bandwidth between switches, to routers and individual servers

- Superior multicast management via support for IGMP snooping in hardware

Ultra Flexible and Scalable Switch Clustering Technology

- GigaStack™ GBIC delivers a hardware-based, independent stacking bus with up to 2 Gbps forwarding rate in a point-to-point configuration, or 1 Gbps forwarding bandwidth when daisy chained with up to 9 switches

- Clustering now supports the member discovery and cluster creation over a single routed hop

- Cisco Switch Clustering technology allows the user to manage up to 16 inter-connected Catalyst 3550-12T, Catalyst 2950, Catalyst 3500 XL, Catalyst 2900 XL and Catalyst 1900 switches through a single IP address without the limitation of being physically located in the same wiring closet

- GBIC-based Gigabit Ethernet ports give customers a choice of 1000BaseSX, 1000BaseLX/LH, 1000BaseZX, 1000BaseT or Cisco GigaStack stacking GBICs to fit their connection needs

- Command switch redundancy allows customers to designate a backup command switch that takes over cluster management functions in the event of a failure of the primary command switch

- Easy interfaces to complex tasks of setting up Layer 3 functions

Integrated Cisco IOS Switching Solution

- Cisco Group Management Protocol (CGMP) server functionality enables a switch to serve as the CGMP router for CGMP client switches and IGMP snooping is supported in the hardware

- Bandwidth aggregation up to 16 Gbps through Gigabit EtherChannel® enhances fault tolerance and offers higher-speed aggregated bandwidth between switches, to routers and individual servers

- Per-port broadcast, multicast, and unicast storm control prevents faulty end stations from degrading overall systems performance

- IOS Command Line Interface (CLI) support provides common user interface and command set with all Cisco routers and Cisco desktop switches

- Cisco Discovery Protocol (CDP) enables a CiscoWorks network management station to automatically discover the switch in a network topology

- VLAN trunks can be created from any port using either standards-based 802.1Q tagging or the Cisco ISL VLAN architecture

- Support for 1005 VLANs per switch and 128 instances of Spanning Tree per switch

- Cisco Virtual Trunking Protocol (VTP) supports dynamic VLANs and dynamic trunk configuration across all switches

- Dynamic Trunking Protocol (DTP) enables dynamic trunk configuration across all ports in the switch

- Port Aggregation Protocol (PAgP) automates the creation of Fast EtherChannel or Gigabit EtherChannel groups, enabling linking to another switch, router, or server.

- Support for Maximum Transmission Units (MTUs) of up to 2025 Bytes

Superior Manageability

- Built-in Web-based Cisco CMS software provides an easy-to-use Web-based management interface through a standard browser such as Netscape Navigator or Microsoft Internet Explorer

- SNMP and Telnet interface support delivers comprehensive in-band management, and a Command Line Interface (CLI)-based management console provides detailed out-of-band management

- Manageable through CiscoWorks Windows network management software on a per-port and per-switch basis providing a common management interface for Cisco routers, switches and hubs

- Supported by the Cisco Quality Policy Manger (QPM) solution

- RMON software agent supports four RMON groups (History, Statistics, Alarms and Events) for enhanced traffic management, monitoring, and analysis

- Support for all nine RMON groups through use of a SwitchProbe® Analyzer (SPAN) port which permits traffic monitoring of a single port, a group of ports, or the entire switch from a single network analyzer or RMON probe

- Domain Name Services (DNS) provide IP address resolution with user-defined device names

- TFTP reduces the cost of administering software upgrades by downloading from a centralized location

- Switch Cluster software upgrade allows network administrators to upgrade the system software of up to 16 interconnected switches through a single CLI command or through an easy-to-use CMS interface

- Network Time Protocol (NTP) provides an accurate and consistent timestamp to all switches within the intranet

- Multi-function LEDs per port for Port Status, Half-Duplex/Full-Duplex, and 10/100/1000BaseT indication as well as switch-level status LEDs for System, RPS and Bandwidth Utilization provide a comprehensive and convenient visual management system

- VTP pruning limits broadcast on VTP trunks; when VTP pruning is enabled, broadcast traffic is flooded only on trunk links required to reach the destination devices

Security and Redundancy

- IEEE 802.1x support (planned future software support)

- Support for HSRP for Router Redundancy

- IEEE 802.1D Spanning-Tree Protocol support for redundant backbone connections and loop-free networks simplifies network configuration and improves fault tolerance

- Cisco Uplink Fast/Backbone Fast technologies ensure quick fail-over recovery enhancing overall network stability and reliability

- Cross-Stack Uplink Fast (CSUF) technology provides increased redundancy and network resiliency through fast spanning-tree convergence (less than two seconds) across a stack of switches using GigaStack GBICs

- Redundant stacking connections support for a redundant loopback connection in top and bottom switches in a stack

- Spanning Tree Root Guard (STRG) prevents edge devices not in the network administrator's control from becoming STP root nodes

- Bridge protocol data unit (BPDU) guard prevents the device from receiving spanning tree protocol BPDUs

- Data plane Access Control List to prevent unauthorized data flows

- User-selectable address learning mode simplifies configuration and enhances security

- Support for the optional Cisco Redundant Power System 300 (RPS 300) that provides superior internal power source redundancy for up to six Cisco networking devices resulting in improved fault tolerance and network uptime

- Multilevel security on console access prevents unauthorized users from altering the switch configuration

- Support for TACACS+ authentication enables centralized control of the switch and restricts unauthorized users from altering the configuration

- Private VLAN edge provides security and isolation between ports on a switch, ensuring that voice traffic travels directly from its entry point to the aggregation device through a virtual path and cannot be directed to a different port

- Local Proxy ARP works in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth

Technical Specifications

Performance

- 24 Gbps switching fabric
- 12 Gbps maximum forwarding bandwidth
- 17 Mpps forwarding rate for 64-byte packets
- 2 MB memory architecture shared by all ports
- 32 MB DRAM and 8 MB Flash memory
- Configurable up to 12000 MAC addresses

Management

- RFC 1213
- IF MIB
- CISCO-CDP-MIB
- CISCO-IMAGE-MIB
- CISCO-FLASH-MIB
- OLD-CISCO-CHASSIS-MIB
- CISCO-PAGP-MIB
- CISCO-VTP-MIB
- CISCO-HSRP-MIB
- OLD-CISCO-TS-MIB
- BRIDGE-MIB (RFC1493)
- CISCO-VLAN-MEMBERSHIP-MIB
- CISCO-VLAN-IFINDEX-RELATIONSHIP-MIB
- CISCO-STACK-MIB (only a subset of the available MIB objects are implemented; not all objects are supported)
- RMON 1 MIB
- IGMP MIB
- PIM MIB
- CISCO-STP-EXTENSIONS-MIB
- OSPF-MIB (RFC 1253)
- IPMROUTE-MIB
- CISCO-MEMORY-POOL-MIB
- CISCO-RTTMON-MIB
- CISCO-PROCESS-MIB
- OLD-CISCO-SYS-MIB
- CISCO-CONFIG-MAN-MIB

Standards

- IEEE 802.1x support (planned future software support)
- IEEE 802.3x full duplex on 10BaseT, 100BaseTX, and 1000BaseT ports
- IEEE 802.1D Spanning-Tree Protocol
- IEEE 802.1p CoS Prioritization
- IEEE 802.1Q VLAN
- IEEE 802.3 10BaseT specification
- IEEE 802.3u 100BaseTX specification
- IEEE 802.3ab 1000BaseT specification
- IEEE 802.3z 1000BaseX specification
- 1000BaseX (GBIC)
    - 1000BaseSX
    - 1000BaseLX/LH
    - 1000BaseZX
- RMON I and II standards

Y2K

- Y2K compliant

Connectors and Cabling

- 10BaseT ports: RJ-45 connectors; two-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling
- 100BaseTX ports: RJ-45 connectors; two-pair Category 5 UTP cabling
- 1000BaseT ports: RJ-45 connectors; two-pair Category 5 UTP cabling
- 1000BaseSX, -LX/LH, -ZX GBIC-based ports: SC fiber connectors, single-mode or multimode fiber
- GigaStack GBIC ports: copper-based Cisco GigaStack cabling
- Management console port: 8-pin RJ-45 connector, RJ-45-to-RJ-45 rollover cable with RJ-45-to-DB9 adaptor for PC connections. For terminal connections, use RJ-45-to-DB25 female DTE adaptor (can be ordered separately from Cisco, part number ACS-DSBUASYN=)

Power Connectors

You can provide power to a switch either by using the internal power supply or the Cisco RPS 300. The connectors are located at the back of the switch.

Internal Power Supply Connector

- The internal power supply is an auto-ranging unit
- Supports input voltages between 100 and 240 VAC
- Use the supplied AC power cord to connect the AC power connector to an AC power outlet

Cisco RPS Connector

- Connection for an optional Cisco Redundant Power System 300 (RPS 300) that uses AC input and supplies DC output to the switch
- 300-watt redundant power system that can support six external network devices and provides power to one failed device at a time
- Automatically senses when the internal power supply of a connected device fails and provides power to the failed device, preventing loss of network traffic
- When internal power supply has been brought up or replaced, the RPS 300 automatically stops powering the device
- Attach only the Cisco RPS 300 (model PWR300-AC-RPS-N1) to the RPS receptacle

Indicators

- Per-port status LEDs link integrity, disabled, activity, speed, and full-duplex indications
- System status LEDs system, RPS, and bandwidth utilization indications

Dimensions and Weight (H x W x D)

- 2.63 x 15.9 x 17.5 in (6.7 x 40.4 x 44.5 cm)
- 1.5 rack-unit (RU) high
- 16 lb (7.26 kg)

Environmental Conditions and Power Requirements

- Operating temperature: 32 to 113° F (0 to 45° C)
- Storage temperature: -13 to 158° F (-25 to 70° C)
- Operating relative humidity: 10 to 85% (non-condensing)
- Operating altitude: Up to 10,000 ft (3,000 m)
- Storage altitude: Up to 15,000 ft (4,500 m)
- Not intended for use on top of desktops or in open office environments

Power Requirements

- Power consumption: 190 W (maximum); 650 BTU per hour
- AC input voltage/frequency: 100 to 127/200 to 240 VAC (autoranging) 50 to 60 Hz
- DC Input Voltages: +12V @ 13A

Mean Time Between Failure (MTBF)

- 113,658 hours

Regulatory Agency Approvals

Safety Certifications

- UL to UL 1950, Third Edition
- c-UL to CAN/CSA 22.2 No. 950-95, Third Edition
- TUV/GS to EN 60950 with Amendment A1-A4 and A11
- CB to IEC 60950 with all country deviations
- NOM to NOM-019-SCFI
- CE Marking

Electromagnetic Emissions Certifications

- FCC Part 15 Class A
- EN 55022 Class A (CISPR 22 Class A)
- VCCI Class A
- AS/NZS 3548 Class A
- BSMI
- CE Marking

Warranty

- Lifetime limited warranty

Service and Support

The services and support programs described in the table below are available as part of the Cisco Desktop Switching Service and Support solution.

Service and Support	Features	Benefits
Rapid Deployment Tools and Service		
Total Implementation Solutions	• Project management • Site survey, configuration deployment • Installation, text, and cutover • Training • Major Moves, Adds, Changes (MAC) • Design review and product staging	• Supplements existing staff • Ensures functionality meets needs • Mitigates risk
Core Service and Support		
TAC SMARTnet™ SMARTnet Onsite (OS)	• 24x7 access to software updates • Web access to technical repositories • Telephone support through the Technical Assistance Center • Advance replacement of hardware parts	• Enables proactive or expedited issue resolution • Lowers cost of ownership by utilizing Cisco expertise and knowledge • Minimize network downtime
Advanced Service and Support		
Solution Packages		
Cisco Business Essential Solution (BES)	• Comprehensive solution that includes Network Supported Accounts Program (NSA), ETAC Relationship Manager, SMARTnet and SMARTnet Onsite, Cisco Interactive Mentor (complete library; five user licences)	• Maximizes network stability and performance • Ensures Seamless Change management • Augments internal networking staff • Deploys solutions and technologies faster with less risk
Cisco Business Critical Solution (BCS)	• Comprehensive high availability solution that includes: Complete Business Essential Solution, Service Delivery Manager, NSA-High Availability Services (NSA-HAS) Program and Network Availability SAL, 24x7 access to ETAC and CIM enterprise wide license	• Fully optimize network to achieve business goals and ahead of competitors • Increase control over network operations • Proactively drive high network availability

Ordering Information

Model Numbers

- WS-C3550-12T: 10 10/100/1000 ports + 2 1000BaseX ports
- RCKMNT-3550-1.5RU=: Spare rack mount kit

For More Information on Cisco Products, Contact:

- US and Canada: 800 553-NETS (6387)
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